10. ABSTRACT OF THE DISCLOSURE

A method and apparatus for increasing data storage capabilities by inserting quantum dots in the pits of disks like CD-RWs, DVDs, WORM disks, and CD-ROM disks, exciting them with a laser diode, and measuring their fluorescence is described. Carriers of different colors are placed in each pit via quantum dots. These dots are made up of multiple colors, or different shades of a color. The quantum dots are inserted using inkjet based technology, laser-induced technology, or holey fibers. A laser diode excites the dots, making them fluoresce, which is measured by a holographic multi-spectral filter (HMSF). The HMSF diffracts the collimated fluorescence before a lens focuses each spectral component onto a detector. A dichroic beam splitter is placed under the HMSF to prohibit the light from the laser diode to reach the detector yet allow the fluoresce through.